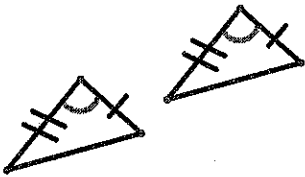
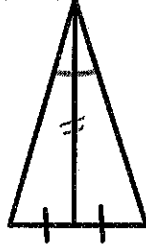
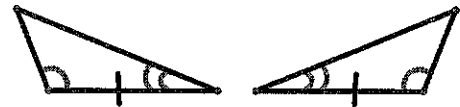
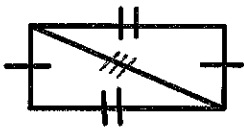
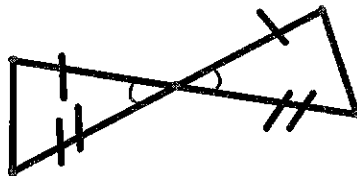
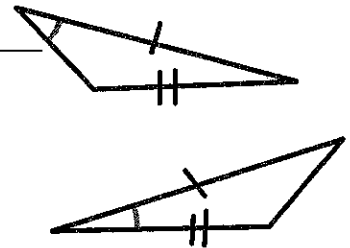
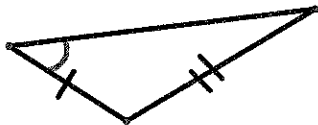
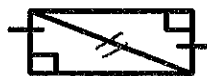
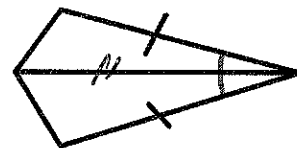
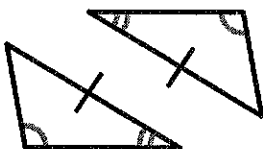
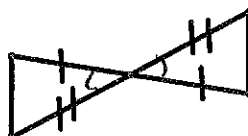
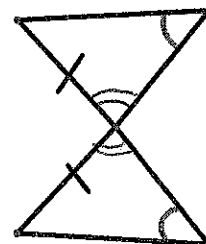


Name Key

Date _____

Congruent Triangles

Determine if the given triangles are congruent. Use the given marks and mark vertical angles and reflexive. If they are congruent, state the reason why. (SAS, SSS, ASA, AAS, and HL.) If they are not congruent, write not.

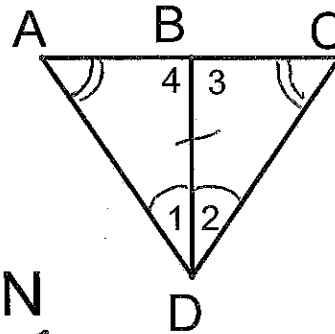
1. SAS2. Not3. ASA4. SSS5. SAS6. Not7. Not8. HL9. SAS10. AAS11. SAS12. AAS

Part B: Use the given information to determine what triangles are congruent and the reason why. Mark the diagrams.

1. Given: \overline{BD} bisects $\angle ADC$; $\angle A \cong \angle C$

$$\triangle ABD \cong \triangle CBD$$

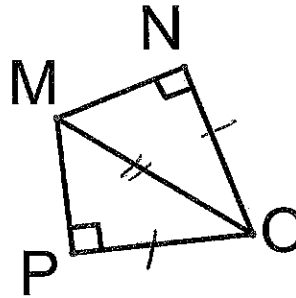
Why? AAS



2. Given: $PO = NO$

$$\triangle MPO \cong \triangle MNO$$

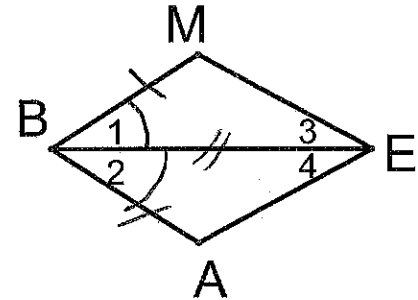
Why? HL



3. Given: \overline{BE} bisects $\angle MBA$; $BM = BA$

$$\triangle BME \cong \triangle BAE$$

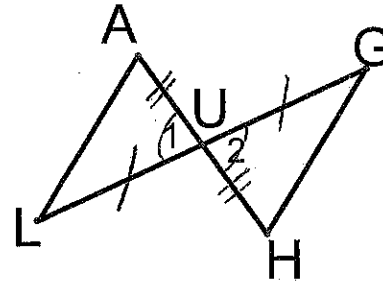
Why? SAS



4. Given: U is the midpoint of \overline{LG} and \overline{AH}

$$\triangle LAU \cong \triangle GHU$$

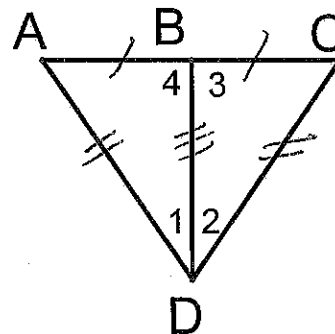
Why? SAS



5. Given: B is the midpoint \overline{AC} ; $AD = CD$

$$\triangle BAD \cong \triangle BCD$$

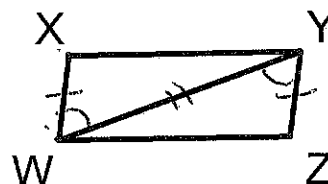
Why? SSS



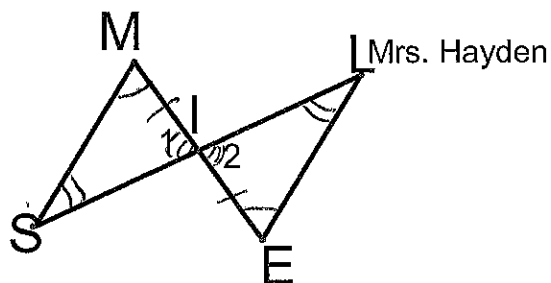
6. Given: $YZ = XW$; $\angle XWY \cong \angle WYZ$

$$\triangle WXY \cong \triangle YZW$$

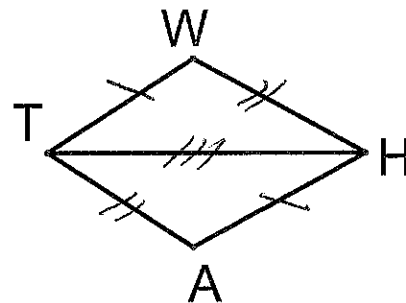
Why? SAS



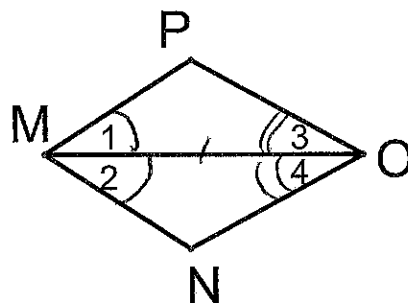
7. Given: $\overline{SM} \parallel \overline{LE}$; I is the midpoint of \overline{ME}
 $\triangle SMI \cong \triangle LEI$
 Why? ASA or AAS



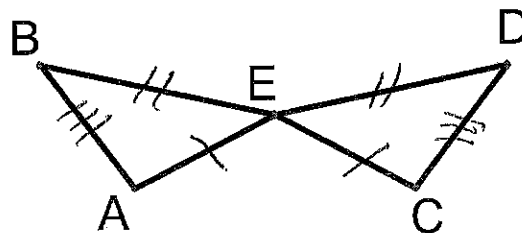
8. Given: $WT = HA$; $WH = AT$
 $\triangle WHT \cong \triangle ATH$
 Why? SSS



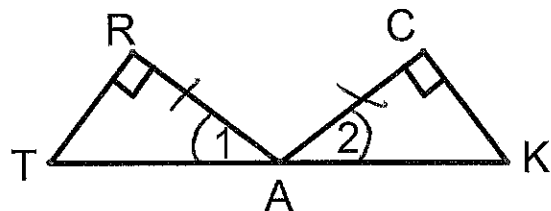
9. Given: \overline{MO} bisects $\angle PMN$ and $\angle PON$
 $\triangle PMO \cong \triangle NMO$
 Why? ASA



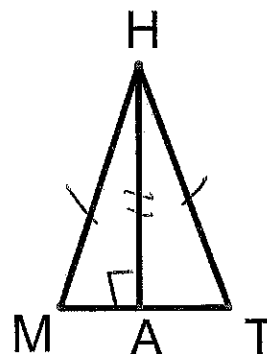
10. Given: $AE = CE$; $BE = DE$; $BA = DC$
 $\triangle BAE \cong \triangle DCE$
 Why? SSS



11. Given: $\angle 1 \cong \angle 2$; $RA = CA$
 $\triangle TRA \cong \triangle KCA$
 Why? ASA

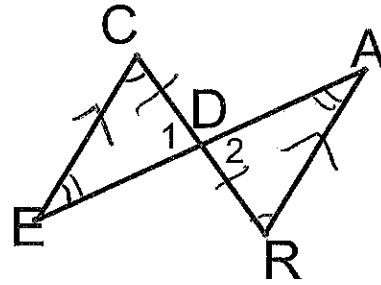


12. Given: $\overline{HA} \perp \overline{MT}$; $HM = HT$
 $\triangle MAH \cong \triangle TAH$
 Why? HL



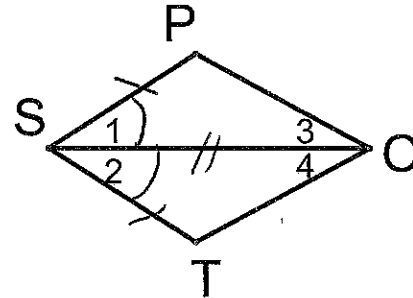
Part C: Write the following proofs.

1. Given: $\overline{CE} \parallel \overline{AR}$; D is the midpoint of \overline{CR}
 Prove: $\triangle CDE \cong \triangle RDA$



S	R
① \sim	① Given
② $\overline{CD} \cong \overline{RD}$	② def of midpoint
③ $\angle C \cong \angle R$ $\angle E \cong \angle A$	③ Alt. Int. \angle s Thm
④ $\triangle CDE \cong \triangle RDA$	④ AAS

2. Given: \overline{SO} bisects $\angle PST$; $\overline{PS} \cong \overline{ST}$
 Prove: $\triangle PSO \cong \triangle TSO$

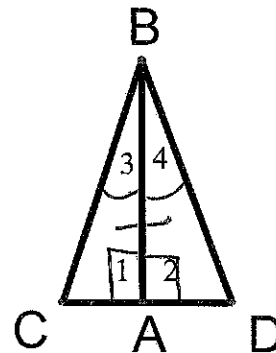


S	R
① \sim	① Given
② $\angle 1 \cong \angle 2$	② def of \angle bis
③ $\overline{SO} \cong \overline{SO}$	③ Refl
④ $\triangle PSO \cong \triangle TSO$	④ SAS

Complete this proof.

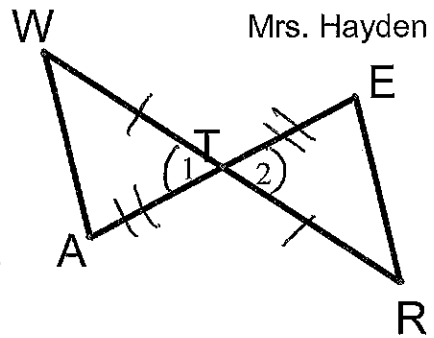
3. Given: \overline{BA} bisects $\angle CBD$; $\overline{BA} \perp \overline{CD}$
 Prove: $\triangle CAB \cong \triangle DAB$

Statements	Reasons
1. \sim	1. Given
2. $\angle 1$ is a right \angle $\angle 2$ is a right \angle	2. def of \perp line
3. $\angle 1 \cong \angle 2$	3. All right \angle s are \cong
4. $\angle 3 \cong \angle 4$	4. def of \angle bis
5. $\overline{BA} \cong \overline{BA}$	5. Reflexivity
6. $\triangle CAB \cong \triangle DAB$	6. ASA



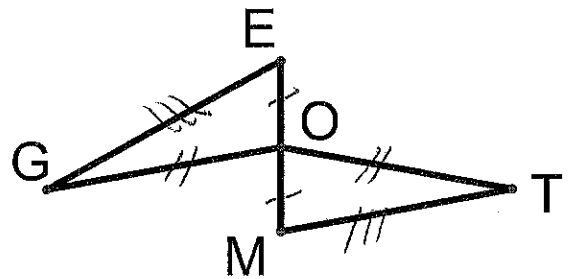
4. Given: T is the midpoint of \overline{WR} and \overline{AE}
 Prove: $\triangle WAT \cong \triangle RET$

S	R
① \overline{WT}	① Given
② $\overline{WT} \cong \overline{RT}, \overline{AT} \cong \overline{ET}$	② def of midpoint
③ $\angle 1 \cong \angle 2$	③ Vert \angle s \cong
④ $\triangle WAT \cong \triangle RET$	④ SAS



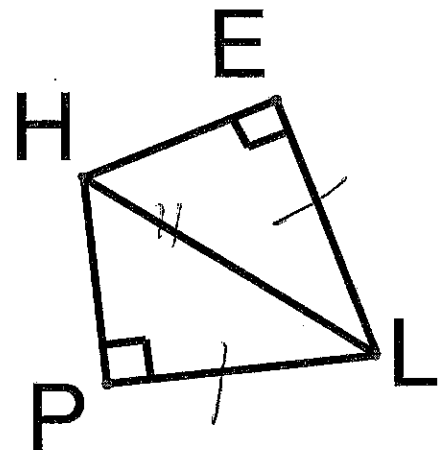
5. Given: O is the midpoint of \overline{EM} ;
 $\overline{GO} \cong \overline{OT}$; $\overline{GE} \cong \overline{MT}$
 Prove: $\triangle GEO \cong \triangle TMO$

S	R
① $\overline{EO} \cong \overline{MO}$	① Given
② $\overline{EO} \cong \overline{MO}$	② def of midpoint
③ $\triangle GEO \cong \triangle TMO$	③ SSS



6. Given: $\triangle ELH$ & $\triangle HPL$ are right triangles
 $\overline{EL} = \overline{PL}$
 Prove: $\triangle HLP \cong \triangle HLE$

S	R
① $\overline{HL} \cong \overline{HL}$	① Given
② $\overline{HL} \cong \overline{HL}$	② Refl
③ $\triangle HLP \cong \triangle HLE$	③ HL



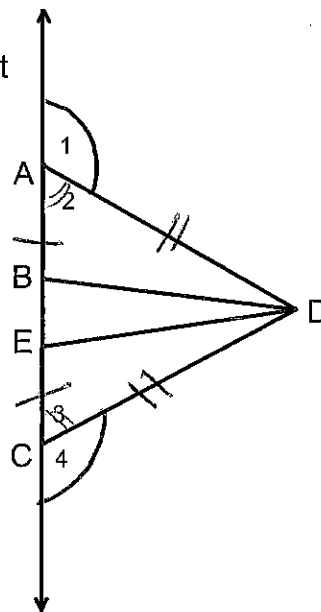
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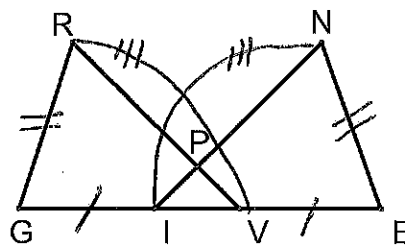
201 Chapter 4 Additional Proofs
Add to Congruent Triangles worksheet

1. Given: $\angle 1 \cong \angle 4$; $\overline{AB} \cong \overline{EC}$
 $\overline{DC} \cong \overline{DA}$
Prove: $\triangle ABD \cong \triangle CED$



- | | |
|---|---|
| <p>① ~</p> <p>② $\angle 1 + \angle 2$ are Lin Pair
$\angle 4 + \angle 3$ are Lin Pair</p> <p>③ $\angle 1 + \angle 2$ are suppl.
$\angle 4 + \angle 3$ are suppl</p> <p>④ $\angle 2 \cong \angle 3$</p> <p>⑤ $\triangle ABD \cong \triangle CED$</p> | <p>① Given</p> <p>② def of L.P.</p> <p>③ L.P. Post</p> <p>④ Congruent Suppl. Thm</p> <p>⑤ SAS</p> |
|---|---|

2. Given: $GI = VE$; $RG = NE$; $NI = RV$
Prove: $\triangle RGV \cong \triangle NEI$



- | | |
|---|---|
| <p>① ~</p> <p>② $IV = IV$</p> <p>③ $GI + IV = IV + VE$</p> <p>④ $GI + IV = GV$
$IV + VE = IE$</p> <p>⑤ $GV = IE$</p> <p>⑥ $\overline{GV} \cong \overline{IE}$; $\overline{GI} \cong \overline{VE}$; $\overline{NI} \cong \overline{RV}$</p> <p>⑦ $\triangle RGV \cong \triangle NEI$</p> | <p>① Given</p> <p>② Reflexivity</p> <p>③ Addition</p> <p>④ SAP</p> <p>⑤ Subst</p> <p>⑥ def of \cong</p> <p>⑦ SSS</p> |
|---|---|

